



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/852,157	05/10/2001	Douwe Molenaar	P 278405 990012 BT-CIP	3863

909 7590 02/04/2005
PILLSBURY WINTHROP, LLP
P.O. BOX 10500
MCLEAN, VA 22102

EXAMINER

RAMIREZ, DELIA M

ART UNIT PAPER NUMBER

1652

DATE MAILED: 02/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/852,157

Applicant(s)

MOLENAAR ET AL.

Examiner

Delia M. Ramirez

Art Unit

1652

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 05 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 16-23 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 16-23 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- 1) ☒ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Art Unit: 1652

DETAILED ACTION

Status of the Application

Claims 16-23 are pending.

Applicant's amendment of claims 16, 18, 19, 21-23 in a communication filed on 10/5/2004 is acknowledged.

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on 10/5/2004 has been entered.

Rejections and/or objections not reiterated from previous office actions are hereby withdrawn.

Claim Objections

1. Claims 16, 19, and 22 are objected to due to the recitation of "an Corynebacterium". This appears to be a typographical error. It should be amended to recite "a Corynebacterium". Appropriate correction is required.
2. Claims 16, 19, and 22 are objected to due to the recitation of "concentration said L-amino acids". This appears to be a typographical error. It should be amended to recite "concentration of said L-amino acids". Appropriate correction is required.

Claim Rejections - 35 USC § 112, Second Paragraph

3. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Art Unit: 1652

4. Claims 16-23 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

5. Claims 16, 19, and 22 (claims 17-18, 20-21 and 23 dependent thereof) are indefinite in the recitation of “(b) concentration of the fermentation broth to eliminate water and increase the concentration said L-amino acids in the broth and Corynebacterium, and (c) isolation of the L-amino acid from the fermentation broth and Corynebacterium of step (b)” for the following reasons. As written, step (b) appears to imply that elimination of water would result in concentration of the L-amino acids in Corynebacterium (i.e. intracellular concentration). However, it is noted that water elimination from the broth would not affect the intracellular concentration of L-amino acids. It is suggested that item (b) be amended to recite “(b) concentration of the fermentation broth to eliminate water and increase the concentration of said L-amino acids and Corynebacterium in the broth” to indicate that cell concentration will also increase by water elimination. Furthermore, as written, step (c) implies that L-amino acids are isolated not only from the broth but also from the cells themselves (intracellular L-amino acids). However, there is no step indicating cell disruption such that the intracellular L-amino acids can be recovered. If such step (i.e. cell disruption) is not intended, it is suggested that item (c) be amended to recite “(c) isolation of the L-amino acid and Corynebacterium of step (b) from the fermentation broth”. For examination purposes, the suggested language will be used. Correction is required.

Claim Rejections - 35 USC § 112, First Paragraph

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Art Unit: 1652

7. Claims 19-21 are rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

Claims 19-21 are directed to a fermentation process for the preparation of L-lysine and L-methionine by cultivating a *C. glutamicum* strain transformed such that the copy number of the *C. glutamicum* ATCC 13032 *mgo* gene is increased. While the specification discloses a fermentation process for the preparation of L-lysine and L-threonine by cultivating a *C. glutamicum* strain transformed with a vector comprising the *C. glutamicum* strain ATCC 13032 *mgo* gene, the specification is silent in regard to the production of L-methionine with such transformed strain, nor there is any teaching which would lead one of skill in the art to reasonably conclude that L-methionine can be produced with said process. The specification discloses only the production of L-lysine and L-threonine with the recited transformed strain, which is insufficient to put one of skill in the art in possession of the attributes and features of the claimed method. Thus, one of skill in the art cannot reasonably conclude that Applicant had possession of the claimed invention at the time the instant application was filed.

8. Claims 16-23 were rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the enablement requirement regarding the operability of the claimed method. This rejection has been discussed at length in the Final Action of 4/5/2004 and the Non Final Action of 9/9/2003. Upon further consideration, this rejection is hereby withdrawn and the following scope of enablement rejection is applied for the reasons set forth below.

Art Unit: 1652

9. Claims 16-21 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for a fermentation process for the preparation of a desired L-amino acid selected from the group consisting of L-lysine and L-threonine, wherein the process comprises fermentation of a *Corynebacterium* or *Brevibacterium* strain modified such that the copy number of the *C. glutamicum* strain ATCC 13032 *mgo* gene is increased, and wherein said *Corynebacterium* or *Brevibacterium* strain produces the desired L-amino acid extracellularly prior to being modified, does not reasonably provide enablement for (1) a fermentation process for the preparation of L-lysine, L-threonine or L-methionine wherein the process comprises fermentation of any *Corynebacterium* or *Brevibacterium* strain modified such that the copy number of the *C. glutamicum* strain ATCC 13032 *mgo* gene is increased, or (2) a fermentation process for the preparation of L-methionine wherein the process comprises fermentation of a *Corynebacterium* or *Brevibacterium* strain modified such that the copy number of the *C. glutamicum* strain ATCC 13032 *mgo* gene is increased, and wherein said *Corynebacterium* or *Brevibacterium* strain produces L-methionine extracellularly prior to being modified. The specification does not enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention commensurate in scope with these claims.

10. Applicants traverse the enablement rejection on the grounds that the Examiner has used a post-filing reference to allege that the claimed invention is non-enabling. Applicants refer to MPEP 2164.05 (a) in support of the argument that the use of the disclosure of U.S. Application No. 10/118325 is improper to show that the claimed invention is not enabled. Also, Applicants assert that while copending U.S. Application No. 10/118325 teach that attenuation of the *C. glutamicum* *mgo* gene in *C. glutamicum* results in the production of L-amino acids, it does not teach or suggest that an increase in L-amino acid could not be achieved via overexpression of the *C. glutamicum* *mgo* gene. Applicants refer to the teachings of the specification, particularly

Art Unit: 1652

Tables 1-2, in support of the argument that the facts shown indicate the operability of the claimed invention.

11. Applicants arguments have been fully considered. The Examiner acknowledges that MPEP 2164.05(a) states that in general the examiner should not use post-filing date references to demonstrate that a patent is non-enabling. However, MPEP 2164.05(a) also states that exceptions to this rule could occur if a later-dated reference provides evidence of what one skilled in the art would have known on or before the effective filing date of the patent application. In re Hogan, 559 F.2d 595, 605, 194 USPQ 527, 537 (CCPA 1977). If individuals of skill in the art state that a particular invention is not possible years after the filing date, that would be evidence that the disclosed invention was not possible at the time of filing and should be considered. In the instant case, while it is agreed that copending U.S. Application No. 10/118325 does not explicitly teach that an increase in L-amino acid production could not be achieved via overexpression of the mqo gene, the fact that said copending application teaches that the attenuation of the C. glutamicum mqo gene in C. glutamicum results in an increase of L-amino acid production, would implicitly teach that an increase in L-amino acid production cannot be achieved by overexpression of the mqo gene, since both teachings are exact opposites.

The Examiner has considered the teachings of both specifications and what is being claimed. It appears from the experimental results of both applications that neither the overexpression nor the attenuation of the mqo gene has any significant effect on the production of L-amino acids. Thus, it appears that the production of L-lysine and L-threonine shown in the specification is that which is endogenous to the strain used prior to any modification. Since the instant claims do not recite a method for increased production of a desired L-amino acid but rather a method for the production of a desired L-amino acid, the complete lack of operability determination previously made is withdrawn since the transformed C. glutamicum in both applications is able to make L-amino acids. However, since there is no evidence to show that any

Art Unit: 1652

Corynebacterium or Brevibacterium strain which is not capable of secreting L-lysine, L-threonine or L-methionine endogenously prior to being transformed would be able to do so after being transformed, the claimed invention is not enabled for any Corynebacterium or Brevibacterium. Also, as indicated above, there is no disclosure of production of L-methionine with a *C. glutamicum* transformed such that the *C. glutamicum* mqo gene copy number is increased, therefore, that embodiment is also deemed not enabled.

Double Patenting

12. Claims 16-17, 19-20, and 22-23 were provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 10 of copending Application No. 10/178219 (common inventor Bettina Mockel).

13. In view of amendments made to claim 10 in copending Application No. 10/178219, which is no longer directed to a method for the production of L-amino acids using coryneform bacteria transformed such that the mqo gene is overexpressed and the csp1 gene is eliminated, this rejection is hereby withdrawn.

14. Claims 16-17, 19-20, and 22-23 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 14 of copending Application No. 10/375355 (common assignee Degussa AG).

15. Claims 16-17, 19-20, and 22-23 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 20 of U.S. Patent No. 6838267 (corresponding U.S. Application No. 09/938540; common inventor Bettina Mockel).

16. Applicants argue that the instant rejections are improper since these applications were filed after the present application and that the Examiner did not provide a two-way obviousness test.

Art Unit: 1652

17. Applicant's arguments have been fully considered but are not deemed persuasive to overcome the double patenting rejections over claim 14 of copending Application No. 10/375355 or claim 20 of U.S. Patent No. 6838267. It is noted that the rejection over claim 20 of U.S. Patent No. 6838267 is not a new rejection since the instant patent corresponds to U.S. Application No. No. 09/938540.

MPEP § 804 clearly indicates that the two-way test is to be applied only when Applicant could not have filed the claims in a single application and there is administrative delay. While no determination has been made regarding whether Applicant could have filed the claims in a single application, according to PTO records, there is no evidence of administrative delay in the examination of the instant application. Also, it is noted that the effective filing dates of U.S. Application No. 09/938540 and 10/375355 are 3/29/2001 (provisional Application No. 60/279413) and 1/29/2001 (divisional of U.S. Application No. 09/770,688), respectively, which is before the filing date of U.S. Application No. 09/852157. Therefore, even if the instant application was filed before U.S. Application No. 09/938540 and 10/375355, the one-way test applied by the Examiner is deemed proper.

The production of L-lysine in claim 14 of copending Application No. 10/375355, and claim 20 of U.S. Patent No. 6838267 is disclosed in the corresponding specifications as being practiced with *C. glutamicum* transformed with the *mgo* gene from *C. glutamicum* strain ATCC 13032. Copending applications No. 10/375355 and now U.S. Patent No. 6838267 disclose practicing the claimed fermentation processes with *C. glutamicum* transformed with the *mgo* gene from *C. glutamicum* strain ATCC 13032 as a preferred embodiment. See references to the *mgo* gene disclosed by Molenaar et al. (Eur. J. Biochem. 254:395-403, 1998) in paragraphs 89, and 93 of the corresponding US publication of applications 10/375355 and 09/938540, respectively. The *mgo* gene disclosed by Molenaar et al. is that of *C. glutamicum* strain ATCC 13032. Therefore, claim 14 of copending Application No. 10/375355, and claim 20 of U.S.

Art Unit: 1652

Patent No. 6838267 would render claims 16-17, 19-20 and 22-23 of the instant application obvious as written.

Conclusion

18. No claim is in condition for allowance.

19. Certain papers related to this application may be submitted to Art Unit 1652 by facsimile transmission. The FAX number is (703) 872-9306. The faxing of such papers must conform with the notices published in the Official Gazette, 1156 OG 61 (November 16, 1993) and 1157 OG 94 (December 28, 1993) (see 37 CFR 1.6(d)). NOTE: If Applicant submits a paper by FAX, the original copy should be retained by Applicant or Applicant's representative. NO DUPLICATE COPIES SHOULD BE SUBMITTED, so as to avoid the processing of duplicate papers in the Office.


20. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PMR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

21. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Delia M. Ramirez whose telephone number is (571) 272-0938. The examiner can normally be reached on Monday-Friday from 8:30 AM to 5:00 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Dr. Ponnathapura Achutamurthy can be reached on (571) 272-0928. Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571) 272-1600.

Delia M. Ramirez, Ph.D.
Patent Examiner
Art Unit 1652

DR
January 28, 2005


REBECCA E. PROUTY
PRIMARY EXAMINER
GROUP 1800
1600